

Design practice and design research: finally together?

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Abstract: Early design research was driven by the ambition to create a coherent Science of Design – an ambition that was later abandoned in favour of a more pluralist approach. But despite great progress in the last 50 years, Design Research can still be criticised for being (1) too disconnected from design practice, (2) internally scattered and confused (3) not achieving the impact that was hoped for. In this paper we will discuss possible solutions to these conundrums by learning from three professional and academic fields: Marketing, Art Theory and Management, respectively. Based on these three discussions an attempt will be made to create an integrated answer by considering how design research and practice might come together in the creation of a new field, “Academic Design”.

Keywords: design research; design practice; academic design

1. Introduction

In the 1960’s and 70’s, at the moment that design research was first formulated as a separate and worthwhile pursuit, the aim was to create a true Science of Design that would be at a par with the Natural Sciences. Herbert Simon and others set out to create a body of work on a ‘science of the artificial’ [Simon, 1992] that would be based on a fundamental understanding of the man-made world, and of the processes that all humans would have in common to create it [Hatchuel, 2001]. Through their logical analyses they were seeking to create a deep, underlying shared body of work that through its coherence would be the bedrock for more ‘applied’ (practice-oriented) knowledge, and that through its depth and rigour would demand recognition as an equal to the ‘hard’ academic disciplines [Cross, 1984].

Fifty years and many attempts later ([Suh, 1998][Roozenburg, 1995]) we have to confess that apart from some delightfully stubborn exceptions (C-K Theory), much of the design



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research community has more or less given up on this quest. It is hard to say what sparked this turnaround – it could be the fact that the proposed fundamental theories of design turned out to be divisive rather than unifying, pitching the art-and-design discourse against the engineering-design discourse and the academic researchers against the practitioners [Cross, 1984]. But perhaps the project to create a grand theory of design was abandoned simply because it had become irrelevant in more post-modern times where the other sciences were steadily becoming less monolithic themselves.

But still, the ambition to provide a pure, strong and coherent basis for design research has been immensely valuable in its day and there is merit in keeping it alive (although today we might be better off not striving for a single, but multiple theories of design). A coherent basis for design research would help design researchers learn from each other's studies and better build on each others knowledge. The emancipatory agenda is also still open - a stronger theoretical basis for the field would definitely help to further the recognition of design in academia [Dorst, 2013].

The author has earlier attempted to address some of these issues in the 2008 paper “Design research – a revolution waiting to happen” [Dorst, 2008], which has become an oft-quoted critique of developments in design research. In this paper we pick up the thread again, seven years later, and reflect on where design research has come to in these years, and map out the current challenges to the field. We will do this by carefully considering three lines of critique that have been prevalent in discussions, and find inspiration/borrow solutions from other academic disciplines to come up with at least a new set of (con)temporary answers. The three common lines of attack to design research are: (1) *Design research is disconnected from design practice* (2) *Design research as field of inquiry is scattered and confused*, (3) *Design research is using the wrong paradigm: it is too analytical, and not future oriented*. Based on these three critical discussions an attempt will be made to create a partial answer by considering how the body of design research is actually contributing to the creation of a new field of “Academic Design” – and we end with ideas on how this could be done more effectively.

2. The missing link

Design practitioners often complain that design research seems to be disconnected from the day-to-day reality of their profession. And although this is inevitable to a degree (research is in the business of abstracting away from everyday details), it is worth taking this critique seriously. One could rephrase the critique slightly more neutrally by saying that knowledge of design resides both in practice and in academic research – and that the problem is that there is little common ground or communication between the two.

If we take written text as a repository of knowledge, then we can see that on the practice-side, professional design magazines show the newest designs, richly illustrated to spark inspiration, and they publish interviews with leading designers to further reflection and understanding. On the research-side, knowledge resides in academic journals, which are

almost purely text-based, and that are looking to support the development of de-contextualised knowledge such as processes and procedures. They aim for rigorous insight rather than inspiration or reflection on practice. They are oriented towards an academic audience, with some lipservice to conclusions for practice. Again above this level of academic research sits a level of philosophical reflection, which harbours the meta-discussions on the epistemology and ontology of both design and design research.

It is useful to compare this situation with other fields of practice that do seem to have a better knowledge flow between academia and practice. If we look at the case of Marketing, for instance, there is an interesting layer of publications that sits between the journals of the practitioners and academic writings that are focused on creating models and theories that further the understanding of the field. That layer consists of a body of well-described extensive case studies, both rigorously gathered and described (so that they can be used as a basis for serious academic study), well-written and amply illustrated (so that they can be used as a basis for reflection and inspiration by practitioners). The layers of knowledge in a field can be pictured as a ladder, and to support a lively and current discussion, knowledge and insights need to travel up and down. The disconnect between design practice and academic design research could be repaired by creating this new, in-between rung of the ladder (see Figure 1).

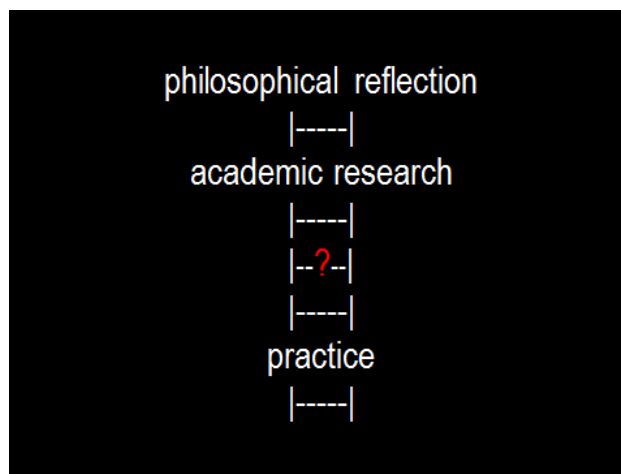


Figure 1: The ladder of design research

From the field of Marketing we can learn that these could be semi standardised, well described cases (like the Harvard Business Cases), consisting of at least 10-15 pages, that describe the design activity and the outcomes achieved in great detail, and (most importantly) include the complete context in which the design project took place. Such a thorough and detailed description of the facts of the matter could be supported by graphic material that allows a practitioner- reader to be inspired and develop his/her own insights

based on the material, while the academic reader would find a validated case study (data set) that is open for multiple analyses...

For design there might be other forms than case studies that would support the knowledge transfer equally well – see for instance [Horlings, 2015] for an interview-based approach to expressing this intermediate level of knowledge.

3. Scattered and confused

Design as a notion and as a field of multiple professions is incredibly broad, and scattered. As a result the small body of knowledge that has been built up over 50 years of design research is also spread very thinly. What doesn't help is that design research has developed quite haphazardly – one gets the sense that decisions on what to investigate in design research tend to be based on the opportunistic question where there is a theory from another field that can be borrowed to elucidate an aspect of design, rather than strategic considerations on what would most help design research – or indeed, design practice. As a result, design research conferences can be acutely confusing experiences, with an avalanche of unconnected studies and theories thrown at the participants. And design is only becoming broader these days, as design practitioners address more and more types of problems (e.g. 'service design', 'social design', etc) design research could be stretched even further. How can we still make sense of these developments? How can we keep design research together when the idea of a single model that would connect all of these studies has had to be abandoned?

This is more or less the same question that Rosalind Krauss tried to answer in her seminal paper on the revolutionary developments in sculpture, '*Sculpture in the expanded field*' [1979]. At that time, modern sculptures had (literally) left the pedestal, and had moved beyond the usual materials (from bronze and stone to butter), shapes (from the human figure to radical abstraction), even giving up on the sense of permanency (throw-away materials, performances) and object orientation (e.g. land art). In brief, sculpture had moved away from being a set profession to become a conceptual field, and this sparked an acute sense of crisis among artists and art schools. In her essay, Krauss attempted to describe these radical steps away from traditional sculpture as part of a logical development, a dialectic of sculpture with and against its defining characteristics. She showed that in its core modern sculpture was still dealing with the deeper issues of classical sculpture (place, materiality, 3D relationship to the body). The fact that these new objects and experiences were still part of that same discussion qualified them to still be called 'sculpture' in an expanded meaning of that term.

Contemporary developments in design can be described and understood in much the same way. The professional field that we so easily label 'design' is complex, and full of inner contradictions. These inner tensions feed the discussions in the field. To name a few: (1) the objectives of design and the motivation of designers can range from commercial success to the common good. (2) The role and position of the designer can be as an autonomous

creator, or as a problem solver in-service to the client. (3) The drive of the designer can be idealistic, or it can be more pragmatic (4) The resulting design can be a 'thing', but also immaterial (5) The basis for the process of designing can be intuitive, or based on knowledge and research... Etcetera... The development of the design disciplines can be traced along these lines of tension - with designers in different environments and times changing position relative to these fundamental paradoxes, but never resolving them. Ultimately, the real strength and coherence of design as a field of professions comes from recognizing these contradictions, and the dynamics of the field is a result of continuous experimentation along the rifts defined by them. Rather than a common set of practices and skills that designers might have [Cross, 1990] it is these inner contradictions in design that define its culture, its mentality. Design research should be an active force in these discussions, building bridges between them where possible. Not to resolve them into a monolithic Science of Design, but advancing the discussion in this dynamically shifting set of relations.

4. The wrong paradigm?

In his book *'Managers, not MBA's'* [2004], the economics Nobel laureate Henry Mintzberg expresses his extreme displeasure at the type of research that is currently being done in Business Schools around the world. He criticises them for their overwhelming emphasis on positivistic, analytical research. He argues that the choice for this research paradigm inevitably leads to the study of practices that have worked in the past, which to his mind is too backward-looking and limiting for a dynamic field like Business, that at its core is concerned with creating new possible futures. He proposes that business schools should switch to what he calls 'design research' – but interestingly, his main example of 'design research' is actually medical research. He sees medical research as a good model as it is *curative* (trying to make the world better), and hence inherently active and forward looking. He then points out how medical research consists of many different layers, that reside with different parties in the medical ecosystem. Practitioners like your local General Practitioner, medical specialists, surgeons, nursing staff, R&D departments at university hospitals and in the pharmaceutical industry all hold specific knowledge and contribute to the field. They do vastly different kinds of research, using different methodologies, techniques and create a wide array of outcomes that finds its way to a myriad of outlets. The stated aim of all this diverse research activity is to improve medical tools and practices.

Comparing this to design research, we can see that like in Business Schools a large part of the research over the past decades has been analytical, trying to create a theoretical underpinning of design and understand the current practices of designers. With Mintzberg I would argue that as a research agenda for a field that is concerned with creating better futures, an exclusive focus on analysis would be too limited. Design research should be forward-looking, seeking to future-proof tools and practices in a world that is changing so quickly that the value of 'best practices' (as examples of what worked in the past) is actually rather questionable. A more pro-active stance would put design research in the position to do the 'R&D' of design itself: reflect on the forces at play on the design professions, the

challenges faced by them (globalisation, increasing complexity, etc) and use academic theories and discussions (e.g. complexity theory) to devise a possible response, effectively developing new design practices. In an ideal scenario the strength of such an academic approach would be that through the comparative distance from practice, overview and access to theories and practices from other fields, an academic design research community could come up with fundamentally new practices for design that would not be easy to conceive by design practitioners as they respond to these forces on a more day-to-day, practical basis.

5. Academic Design: integrating design practice and research

So far, these three critical discussions have led us to quite different solution directions: (1) reducing the distance between design practice and research by creating a body of work that is attractive to and can be accessed by both; (2) addressing the scatteredness by seeing design as a field of dynamically interrelated discussions (3) reconsidering the appropriate paradigm for design research, from analytical to curative.

Behind all of these attempts to 'bridge the gaps', lies the silent assumption that design and research are fundamentally separate as ways of thinking, and as entities in the world. Yet it could be better to look at ways in which the two could actually come together, intertwined in a new hybrid that could be called "academic design" [Dorst, 2013]. Such a new field of academic design would have a few distinguishing features.

(1) Academic design would sit *between* the field of design practice/ problem solving and the field of academic discussion. Thus academic design has a dual nature: it can be seen as the use of theory for the framing of a real world problem when we look from the side of practice, while from the side of academia, it can be seen as a design experiment that has been derived from academic thoughts and discussions, translated into potential (experimental) action. Academic design, then, is the locus where theory and practice interact (see Figure 2).

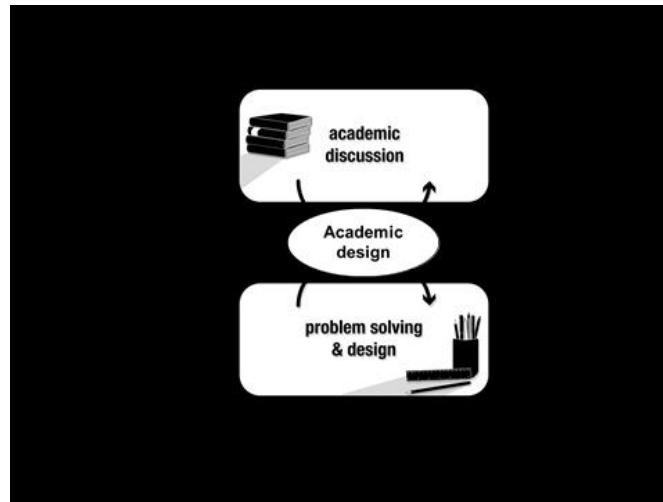


Figure 2: the position of Academic Design.

Thus academic design transcends real-world design practice by not just dealing with extant situations and discussions, but delving deeper and creating a position from which we can propose scenarios that project further into the future than professional practice can normally see. This could lead to radically new designs.

(2) Academic design is very much an artificially constructed field, rather than something that evolves naturally from design practice. Its position between practice and academia means that it can be criticised from both of its 'parents', and will often be required to answer to their two very different sets of quality criteria until it has grown its own set of criteria and has worked to get them accepted.

(3) This dual nature means that at its core lies discourse, discussion and debate; it is neither research or theory purely for its own sake, although for stretches of the academic design process, when a deeper understanding is needed, this type of thinking can be quite dominant. Nor is it applied research, as in the mere application of academic knowledge to design problems.

(4) Academic design is also fundamentally nomadic. Academic designers have a foot in practice as well as in universities. With more and more design researchers working in companies, design research has already found multiple homes. A good deal of the best academic design takes place in companies like IDEO, Johnson & Johnson, Microsoft, XEROX PARC.

A good example of such a new academic branch of the design family tree is the development of Empathic Design [Mattelmaki et al, 2014]. At the end of the nineties, the rise of new information technology posed industrial designers with novel challenges: they had to find ways to understand software and interaction as materials, and they had to develop processes for achieving a much more detailed and dynamic understanding of users. When searching for new ways of designing, empathic designers in practice and in design schools

turned to several sources – they learned ethnographic methods from anthropology and sociology, which they sought to combine with the tools for conceptual design that came from design practice. This gave rise to the development of cultural probes, and the re-casting of data gathering, interpretation and analysis as an iterative process in which observations lead to questions that lead to further observations and so on. Empathic Design is explicitly informed by theories such as symbolic interactionism [Battarbee, 2004], and could not have been developed without them. Empathic design simultaneously negotiates its way through academia and practice, and its frameworks are used by academic researchers and industry alike.

What does this look like on the ground, on a project level – let's turn to a different branch of Academic Design, more associated with the developments in Social Design, for an example of design practice with a difference. The following project was done by André Schaminée (consultant at Twynstra Gudde), Vera Winthagen (TU Eindhoven/ Van Berlo Design) and Tabo Goudswaard (artist) - see [Dorst et al, 2016]. The case study will first be described from a practice-perspective.

The A9 highway around Amsterdam is one of the busiest roads in the Netherlands. To provide better accessibility, improve air quality and reduce sound levels a new 12-lane tunnel will be built and on the roof of the tunnel, a new park will be made. The planned construction time is 5 years, and these works will heavily impact the adjoining residential neighbourhood, the Bijlmer (a poor, multicultural district of 80.000 people from 186 nationalities). A tightrope-job for the 'Stakeholder-manager' whose task it is to communicate the program to those impacted and to handle complaints. The context in which they have to operate is one of hard facts and figures: these engineering works require strict planning and control. Communication with the external stakeholders is professionally handled through extensive consultation processes, to prevent costly delays.

In mapping out the problem, its existing context and the broader field, the designers/researchers immersed themselves in the Bijlmer area to glean what underlying Themes that were important in the lives and minds of the people, municipality and companies. This was a very rich process and many fruitful Themes were identified, leading to frames and solution directions. Just an example: the researchers uncovered that there are many small and excellent entrepreneurs in the area, but that a good many of them are semi-legal. Many conversations in the Bijlmer circled around jobs, and how to get by economically. This theme led to the development of a new frame, that captures the needs of the people and organizations in the area: what if you could see the building of the tunnel as a new 'temporary economy'? What new connections could we make then? The framing of the five years of construction work as a welcome time for experimentation and renewal also strikes a chord in the local community. Welcoming the workers as temporary inhabitants of the area and supporting them with small entrepreneurial activity that can spring up around the works (food stalls, childcare, repair services, airbnb, etc) is a great way to prototype the facilities that can eventually populate the park that eventually will cover the tunnel. In the process, these firms can be helped to professionalise and become legal, opening them up to investment for the first time.

Please note that the approach taken in this project is very designerly, a far cry from the normal problem solving approach which centers on consultation and complaints management. From an academic perspective, this experimental approach is based on research into design practices, in particular Frame Creation [Dorst, 2015] and problem solving in the networked society [Boutellier, 2013]. Its broader academic context is anchored in contemporary public sector management theory [Stacey and Griffin, 2000, 2006], and the proposed solution is inspired by Nussbaum's capability building approach to aid and development issues [Nussbaum, 2011]. The knowledge gained through this experimental project is circled back into the development of theoretical frameworks, and broadly disseminated into the practice community through lectures and the written word [Dorst et al, 2016]. Thus this academic design project in its own small way addresses the three critical discussions that are explored in this paper: it reduces the distance between design practice and research by creating a body of work that is attractive to and can be accessed by both: the project has sparked keen interest from major engineering firms, and the opportunity has arisen to create a body of work to explore this approach more deeply. The project addresses the scatteredness of design by the integration of social aspects into a major infrastructure project. This opens up the discussion in Engineering Design about the conventional limits of that field. Risk is a central notion in engineering, but if the nature of the risk in these projects is social rather than technical, aspects of social design will need to be integrated into the engineering approach. The project is seeking to create new knowledge by pro-actively experimenting with a proposed methodology, in this case 'Frame Creation'. In doing so it moves away from purely analytical research, that would have led to a description of current best practices, and seeks to further theories and methods from design research, problem solving and change management through an experimental practice.

6. Conclusion: as design matures...

As design matures, bridges are being built that in the end will create a new connected field that naturally includes design and research. Perhaps the early idealism in design research to strive for the creation of a 'Science of Design' was more based on the eagerness to fit into the mould of the sciences than based on confidence in the designers and designing disciplines themselves. What should have been unifying theories created a rift between design research and design practice that we are still mending – see the three critical discussions that form the basis for this paper.

This rift would have been largely unnecessary if we, as an academic design research community, had realised then that over the years, design would gravitate towards an academic status once the developing design practices would need academic knowledge to address new and complex challenges.

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